

## Montana Board of Oil and Gas Conservation Environmental Assessment

Operator: TAQA North USA, Inc.  
Well Name/Number: State 16-4H  
Location: NW NW Section 16 T37N R57E  
County: Sheridan, MT; Field (or Wildcat) Wildcat (Flat Lake)

### Air Quality

(possible concerns)

Long drilling time: No, 20-30 days drilling time.

Unusually deep drilling (high horsepower rig): Heavy double derrick drilling rig 900-1000 HP (Estimated) to drill a Bakken formation single lateral horizontal well, 11,880' MD/7,708' TVD.

Possible H<sub>2</sub>S gas production: Slight chance H<sub>2</sub>S gas.

In/near Class I air quality area: No Class I air quality area nearby.

Air quality permit for flaring/venting (if productive): Yes, DEQ air quality permit required under 75-2-211.

Mitigation:

☒ Air quality permit (AQB review)

☐ Gas plants/pipelines available for sour gas

☐ Special equipment/procedures requirements

☐ Other: \_\_\_\_\_

Comments: Existing field infrastructure to handle gas. No concerns.

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### Water Quality

(possible concerns)

Salt/oil based mud: Intermediate string hole will be drilled with oil based invert mud system and openhole horizontal production hole will be drilled with fresh water polymer drilling fluids. Surface casing hole will be drilled with a freshwater, and freshwater mud system.

High water table: No high water table anticipated.

Surface drainage leads to live water: No, closest drainage is an unnamed tributary ephemeral drainage to Larson Slough, about 3/4 of a mile to the south from this location. Larson Slough about 1 mile to the southeast from this location.

Water well contamination: None, closest water wells in the area are about 5/8 of a mile to the northwest and 3/4 of a mile to the northeast from this location all other water wells are 1 mile or further from this location. Depth of these stockwater wells are from 95' to 200'. Surface hole will be drilled with freshwater and freshwater drilling muds. The surface casing setting depth, of 1250' should be below all freshwater zones.

Porous/permeable soils: Yes, sandy clay soils.

Class I stream drainage: No, Class I stream drainages.

Mitigation:

☐ Lined reserve pit

☒ Adequate surface casing

☐ Berms/dykes, re-routed drainage

☒ Closed mud system

☒ Off-site disposal of solids/liquids (in approved facility)

☒ Other: Freshwater drilling fluids will be land applied with surface owner approval.

Comments: 1250' surface casing well below freshwater zones in adjacent water wells. Also, covering Fox Hills aquifer. Adequate surface casing and operational BOP equipment to prevent problems in and around freshwater slough.

## Soils/Vegetation/Land Use

(possible concerns)

Steam crossings: None anticipated.

High erosion potential: No, moderate cut, up to 13.2' and moderate fill, up to 10.1', required.

Loss of soil productivity: None, location to be restored after drilling well, if nonproductive. If productive unused portion of drillsite will be reclaimed.

Unusually large wellsite: No, large well site 430'X460'

Damage to improvements: Slight, surface use is a cultivated field.

Conflict with existing land use/values: Slight

Mitigation

☐ Avoid improvements (topographic tolerance)

☐ Exception location requested

☒ Stockpile topsoil

☐ Stream Crossing Permit (other agency review)

☒ Reclaim unused part of wellsite if productive

☐ Special construction methods to enhance reclamation

☐ Other \_\_\_\_\_

Comments: Access will use existing county road, Ueland Road and a section line road. A short road of about 11' will be built off the lease road into this location.. Surface hole (freshwater) cuttings will be mixed buried on site. Oil based invert mud cuttings will be trucked to an approved waste disposal facility. Oil based drilling fluids will be recycled to the next location or returned to the mud company's recycling facility. Freshwater surface fluids and horizontal freshwater polymer fluids and cuttings will be land applied. No concerns.

## Health Hazards/Noise

(possible concerns)

Proximity to public facilities/residences: Closest residences are about 5/8 of a mile to the southeast, 1.25 miles to the northwest, 1.25 miles to the northeast and 1.5 miles to the southeast from this location.

Possibility of H2S: Yes, slight.

Size of rig/length of drilling time: Heavy double drilling rig 20 to 30 days drilling time.

Mitigation:

☒ Proper BOP equipment

☐ Topographic sound barriers

☐ H2S contingency and/or evacuation plan

☐ Special equipment/procedures requirements

☐ Other: \_\_\_\_\_

Comments: Adequate surface casing cemented to surface with operational BOP stack should mitigate any problems.

## Wildlife/recreation

(possible concerns)

Proximity to sensitive wildlife areas (DFWP identified): None identified.

Proximity to recreation sites: None identified.

Creation of new access to wildlife habitat: No

Conflict with game range/refuge management: No

Threatened or endangered Species: Only species identified as threatened or endangered are the Whooping Crane and Piping Plover. Candidate species is the Sprague's Pipit. NH Tracker site indicates 14 species of concern. All are migratory birds.

Mitigation:

☐ Avoidance (topographic tolerance/exception)

☒ Other agency review (DFWP, federal agencies, DSL)

\_\_\_ Screening/fencing of pits, drillsite

\_\_\_ Other: \_\_\_\_\_

Comments: State of Montana cultivated surface lands. Trust Lands Division will do surface  
EA. \_\_\_\_\_

\_\_\_\_\_

### **Historical/Cultural/Paleontological**

(possible concerns)

Proximity to known sites: None identified.

Mitigation

\_\_\_ avoidance (topographic tolerance, location exception)

\_\_\_ other agency review (SHPO, DSL, federal agencies)

\_\_\_ Other: \_\_\_\_\_

Comments: State of Montana cultivated surface lands. Trust Lands Division will do surface  
EA. \_\_\_\_\_

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### **Social/Economic**

(possible concerns)

\_\_\_ Substantial effect on tax base

\_\_\_ Create demand for new governmental services

\_\_\_ Population increase or relocation

Comments: No concerns. Wildcat well within an existing oil field, Flat Lake Field.

### **Remarks or Special Concerns for this site**

Wildcat Bakken formation horizontal well within an existing oil field, Flat Lake Field

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### **Summary: Evaluation of Impacts and Cumulative effects**

No long term impacts expected. Some short term impacts will occur, but can be mitigated in a short time.

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I conclude that the approval of the subject Notice of Intent to Drill (does/**does not**) constitute a major action of state government significantly affecting the quality of the human environment, and (does/**does not**) require the preparation of an environmental impact statement.

Prepared by (BOGC): /s/Steven Sasaki

(title): Chief Field Inspector

Date: March 9, 2011

Other Persons Contacted:

Montana Bureau of Mines and Geology, Groundwater Information Center website.

\_\_\_\_\_  
(Name and Agency)

Sheridan County water wells

\_\_\_\_\_  
(subject discussed)

March 9, 2011

\_\_\_\_\_  
(date)

US Fish and Wildlife, Region 6 website

\_\_\_\_\_  
(Name and Agency)

ENDANGERED, THREATENED, PROPOSED AND CANDIDATE SPECIES MONTANA  
COUNTIES, Sheridan County

\_\_\_\_\_  
(subject discussed)

March 9, 2011

\_\_\_\_\_  
(date)

Montana Natural Heritage Program Website (FWP)

\_\_\_\_\_  
(Name and Agency)

Heritage State Rank= S1, S2, S3, T37N R57E

\_\_\_\_\_  
(subject discussed)

March 9, 2011

\_\_\_\_\_  
(date)

If location was inspected before permit approval:

Inspection date: \_\_\_\_\_

Inspector: \_\_\_\_\_

Others present during inspection: \_\_\_\_\_